FIG. 1A
(PRIOR ART)

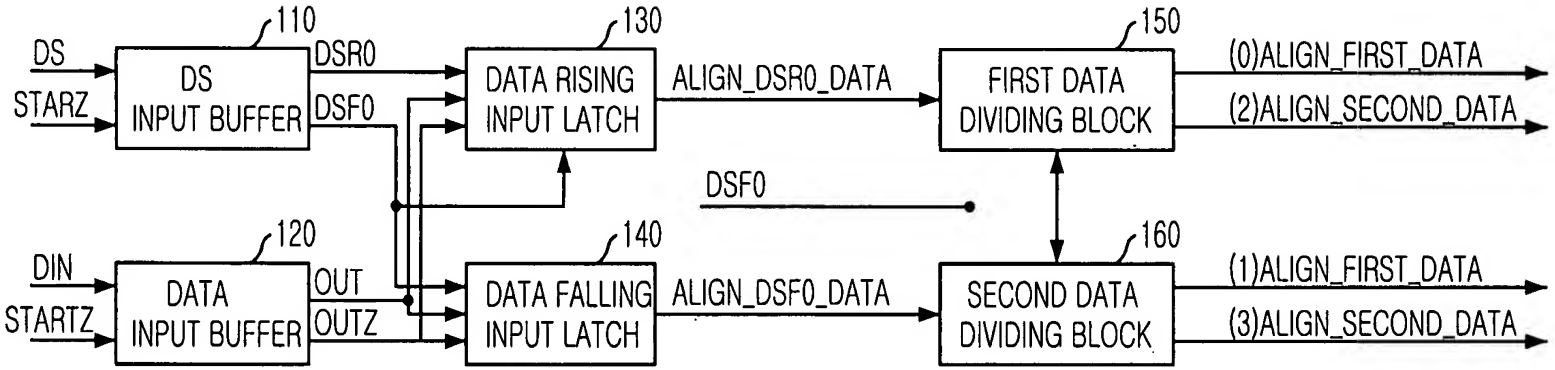


FIG. 1B
(PRIOR ART)

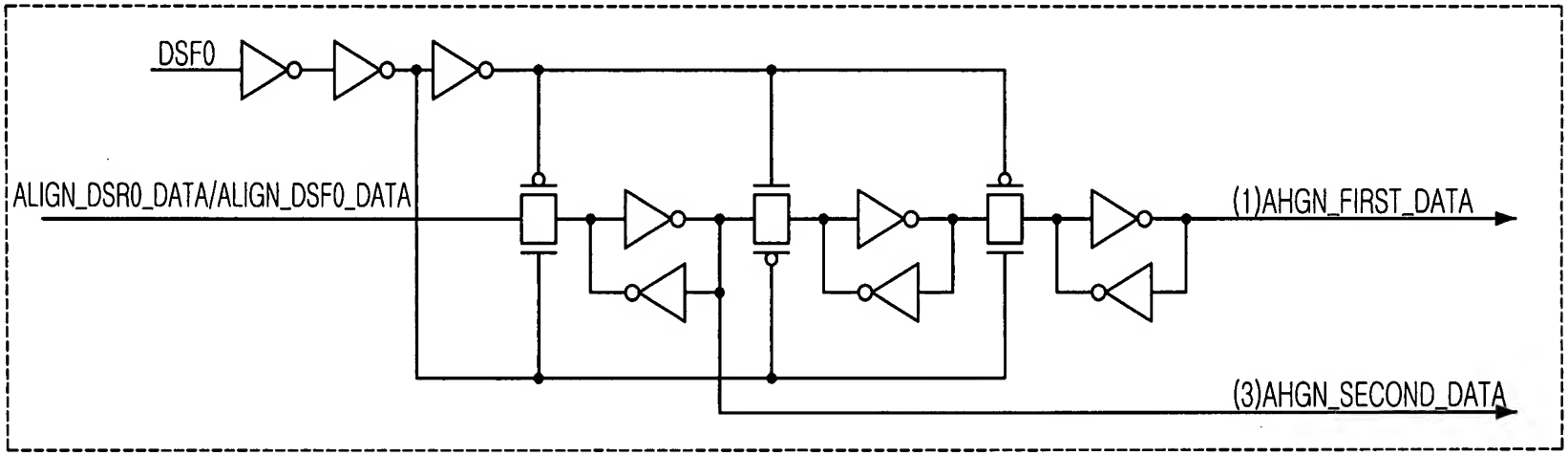


FIG. 2
(PRIOR ART)

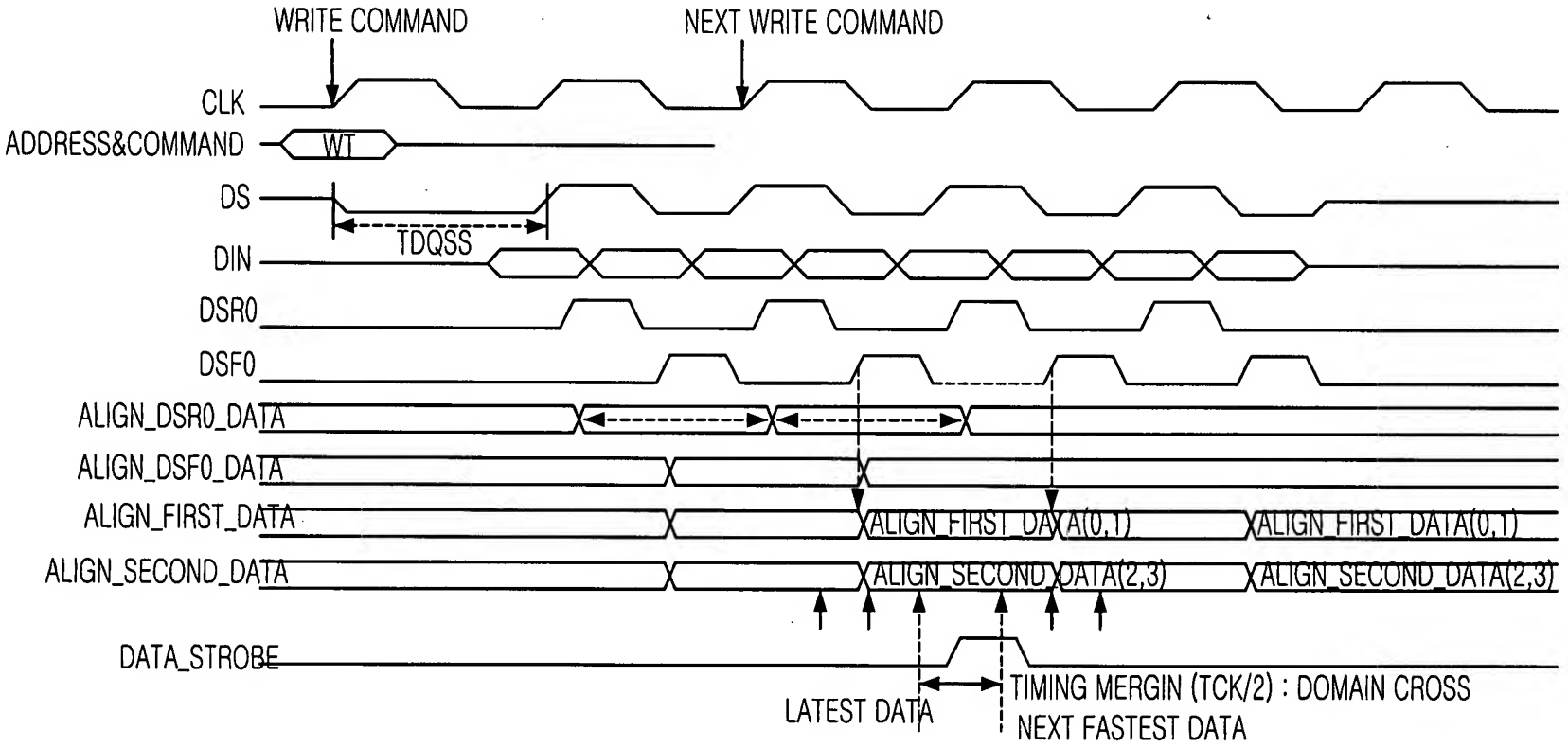
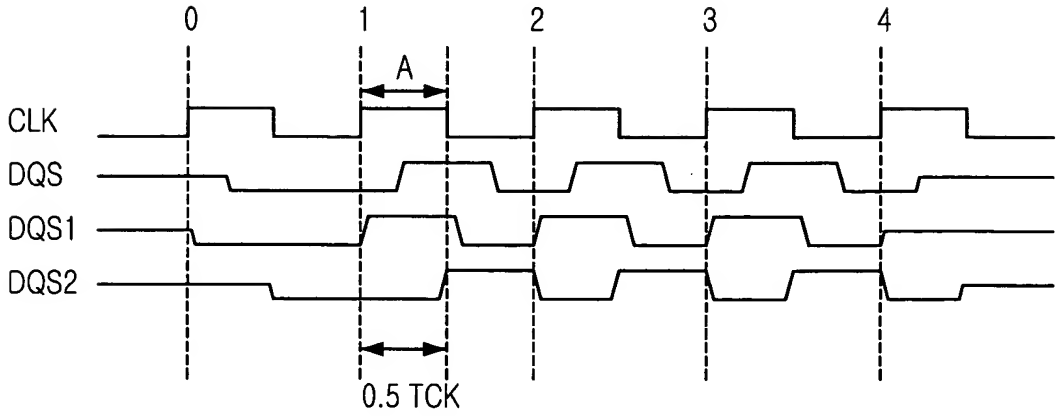


FIG. 3
(PRIOR ART)



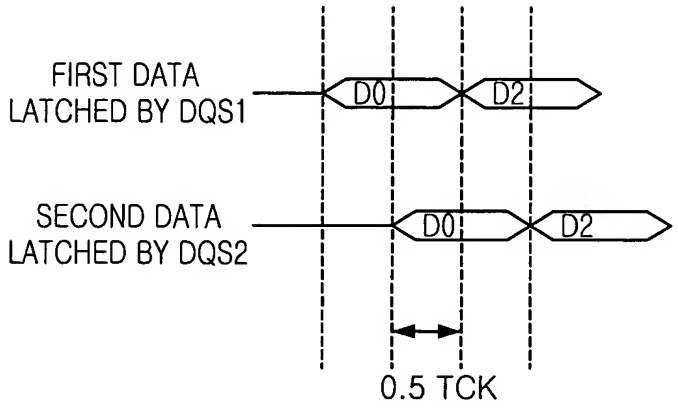


FIG. 4

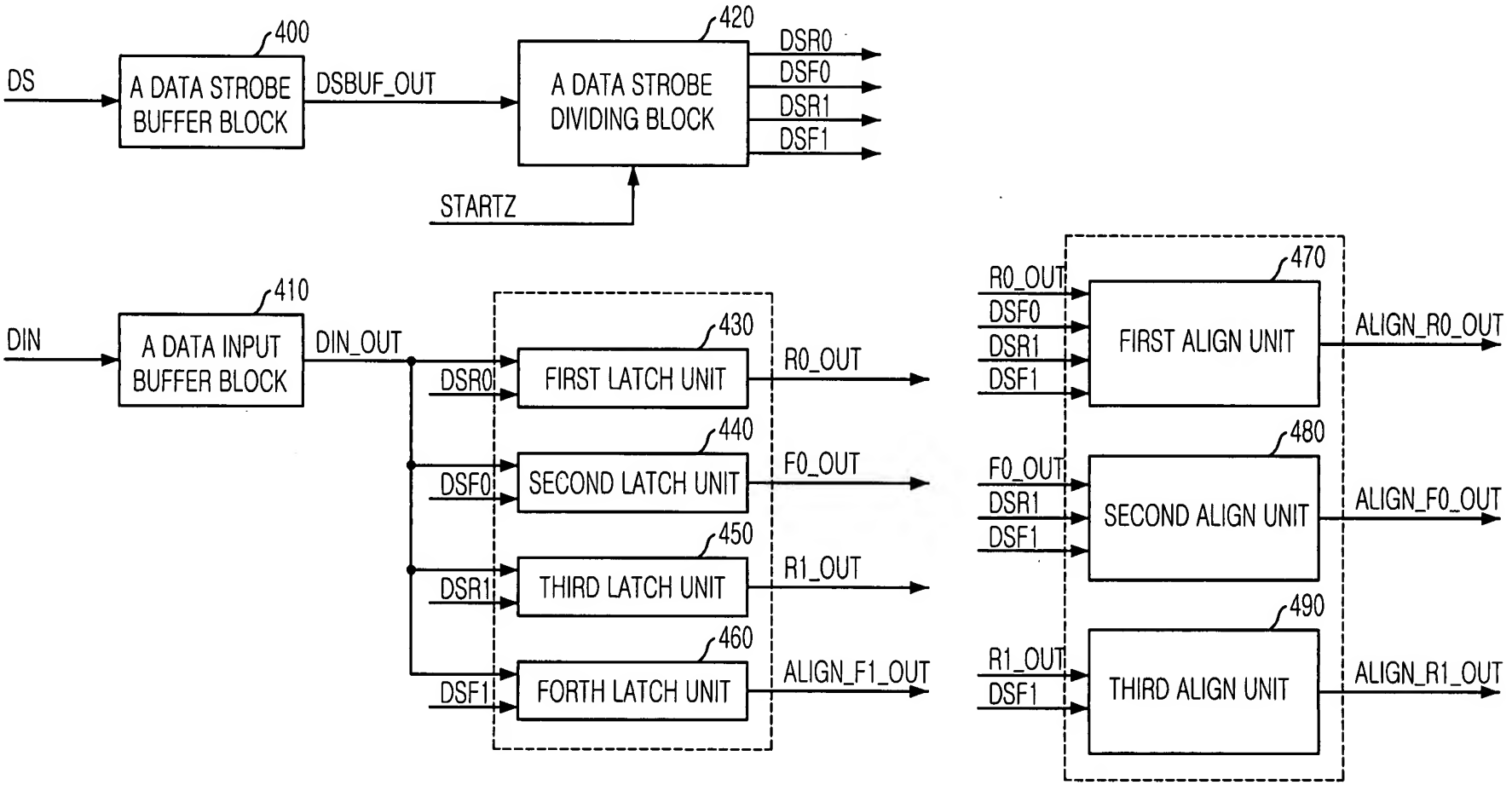

400
DS
A DATA STROBE BUFFER BLOCK
DSBUF_OUT
420
A DATA STROBE DIVIDING BLOCK
DSR0
DSF0
DSR1
DSF1
STARTZ
410
DIN
A DATA INPUT BUFFER BLOCK
DIN_OUT
430
DSR0
FIRST LATCH UNIT
R0_OUT
440
DSF0
SECOND LATCH UNIT
F0_OUT
450
DSR1
THIRD LATCH UNIT
R1_OUT
460
DSF1
FORTH LATCH UNIT
ALIGN_F1_OUT
470
R0_OUT
DSF0
DSR1
DSF1
FIRST ALIGN UNIT
ALIGN_R0_OUT
480
F0_OUT
DSR1
DSF1
SECOND ALIGN UNIT
ALIGN_F0_OUT
490
R1_OUT
DSF1
THIRD ALIGN UNIT
ALIGN_R1_OUT

FIG. 5

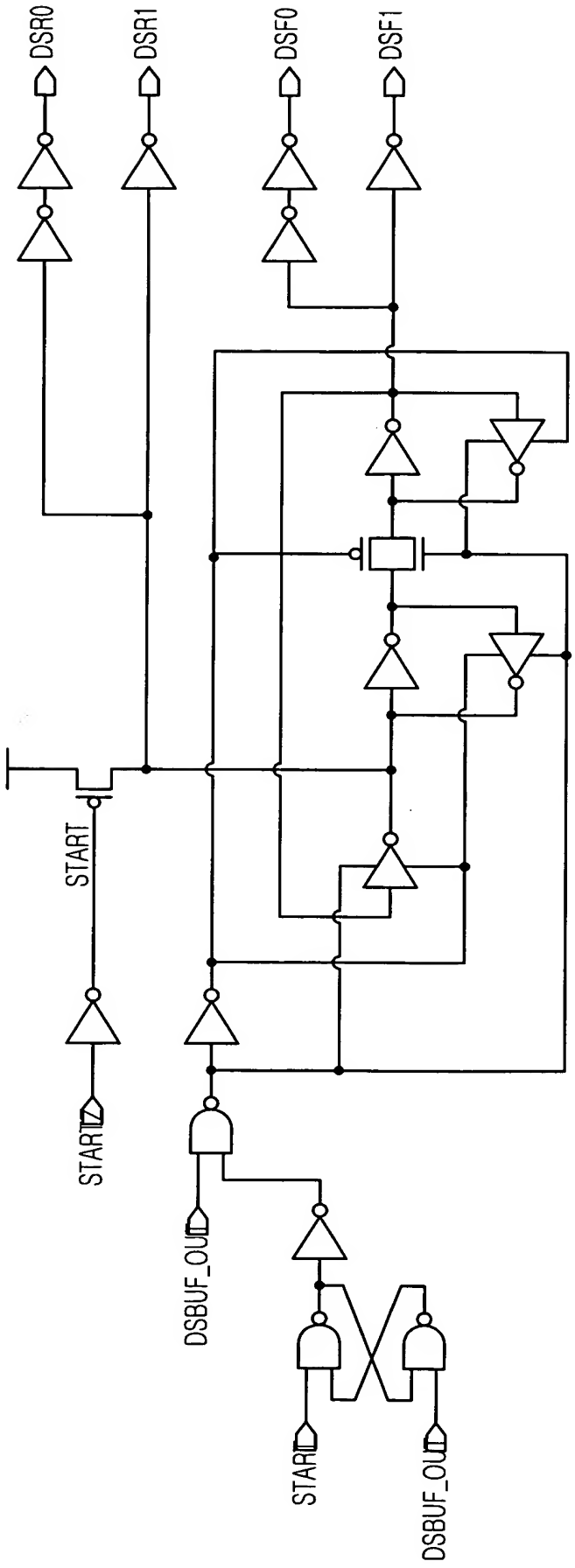


FIG. 6

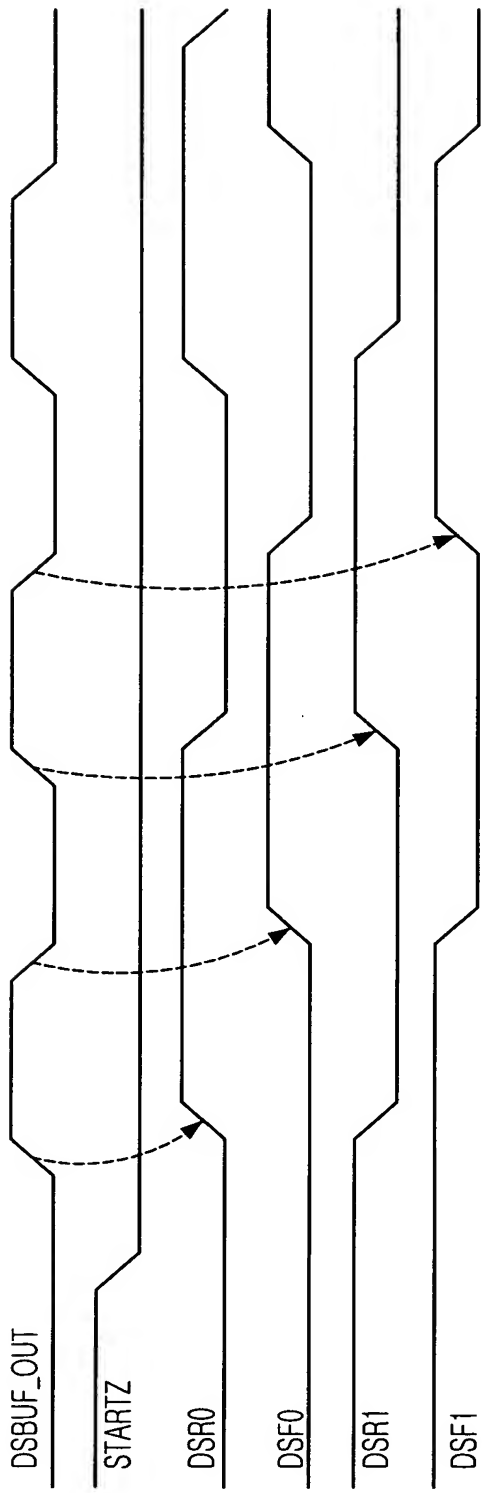


FIG. 7

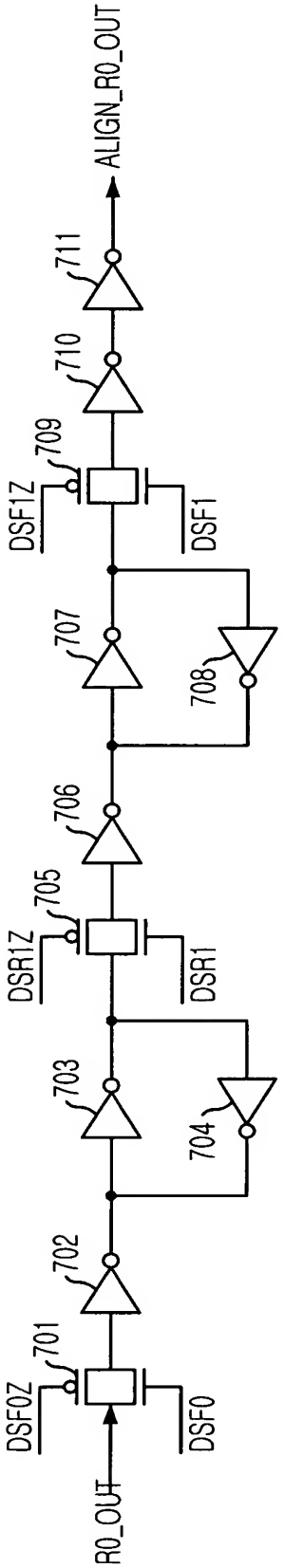

R0_OUT
DSF0Z
701
DSF0
702
703
704
DSR1Z
705
DSR1
706
707
708
DSF1Z
709
DSF1
710
711
ALIGN_R0_OUT

FIG. 8

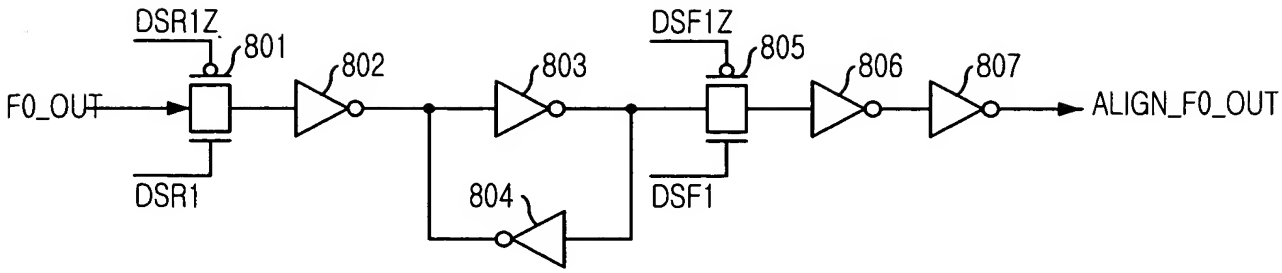

DSR1Z
801
802
803
DSF1Z
805
806
807
F0_OUT
ALIGN_F0_OUT
DSR1
804
DSF1

FIG. 9

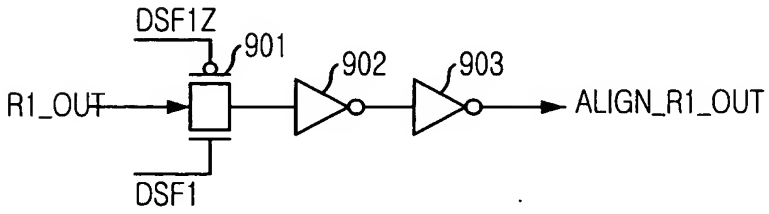
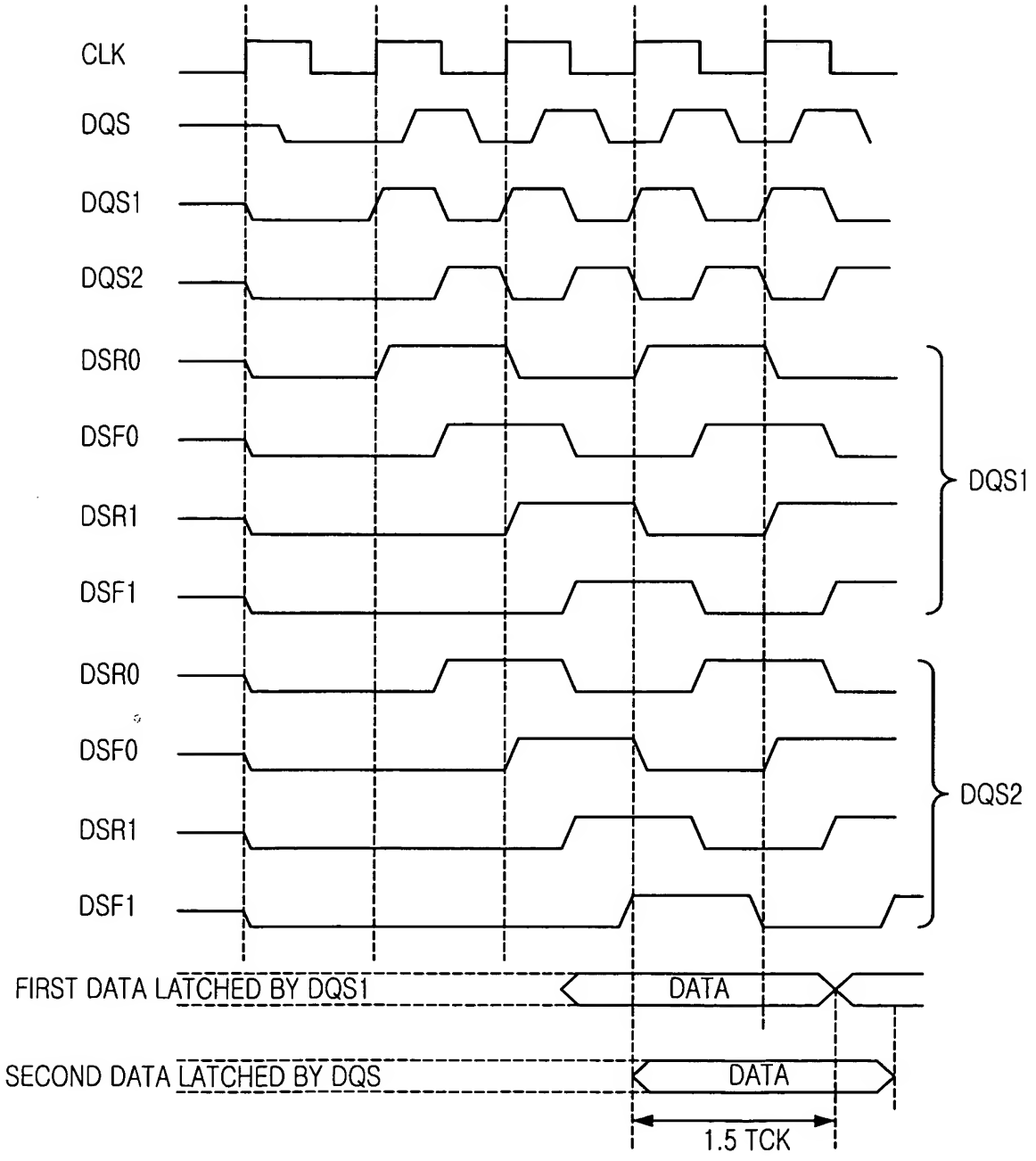

DSF1Z
901
902
903
R1_OUT
ALIGN_R1_OUT
DSF1

FIG. 10


CLK
DQS
DQS1
DQS2
DSR0
DSF0
DSR1
DSF1
DQS1
DSR0
DSF0
DSR1
DSF1
DQS2
FIRST DATA LATCHED BY DQS1
DATA
SECOND DATA LATCHED BY DQS
DATA
1.5 TCK

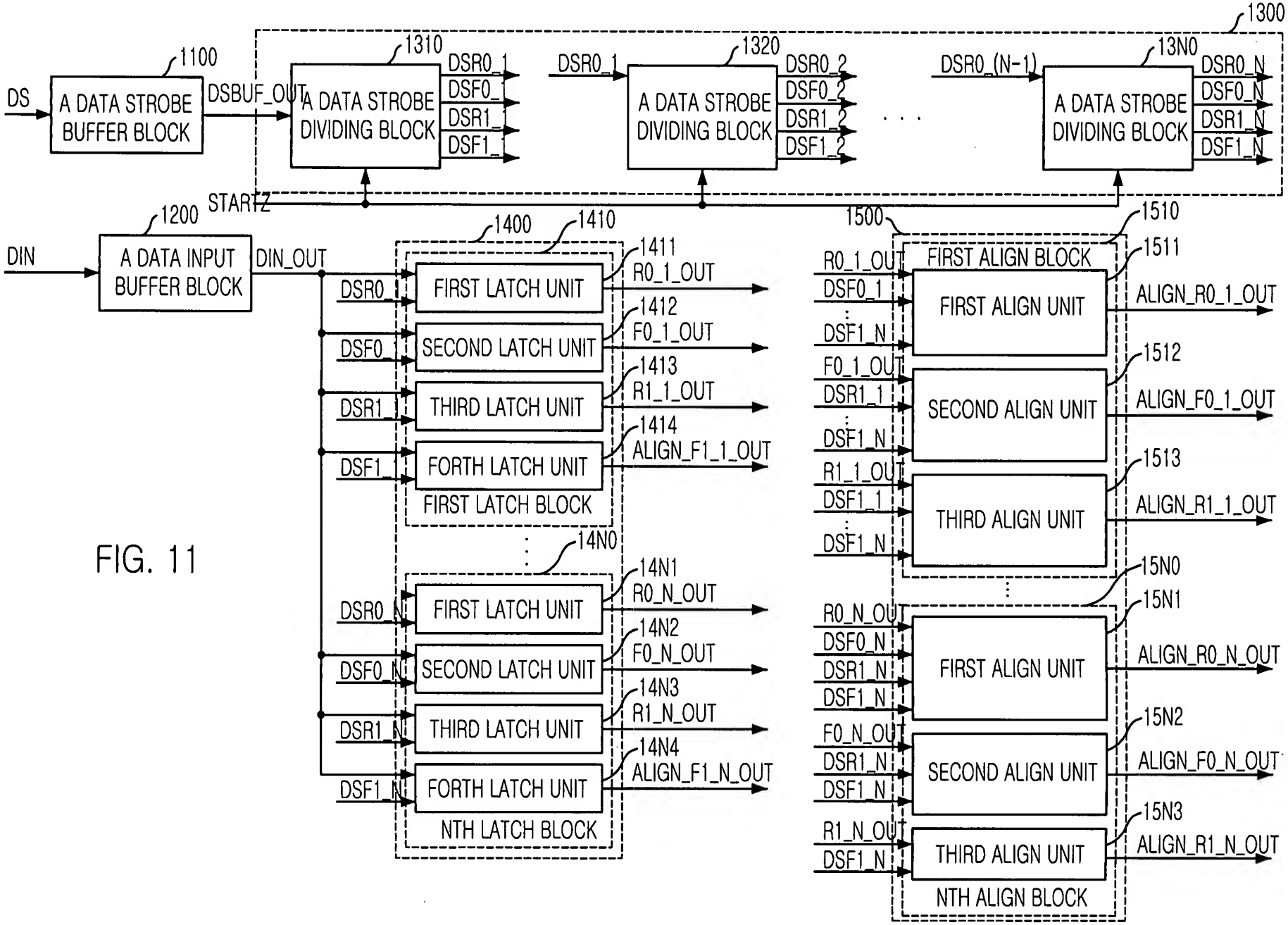

1300
1100
DS
A DATA STROBE BUFFER BLOCK
DSBUF_OUT
1310
A DATA STROBE DIVIDING BLOCK
DSR0_1
DSF0_1
DSR1_1
DSF1_1
DSR0_1
1320
A DATA STROBE DIVIDING BLOCK
DSR0_2
DSF0_2
DSR1_2
DSF1_2
DSR0_(N-1)
13N0
A DATA STROBE DIVIDING BLOCK
DSR0_N
DSF0_N
DSR1_N
DSF1_N
STARTZ
1200
DIN
A DATA INPUT BUFFER BLOCK
DIN_OUT
1400
1410
DSR0_1
DSF0_1
DSR1_1
DSF1_1
FIRST LATCH UNIT
SECOND LATCH UNIT
THIRD LATCH UNIT
FORTH LATCH UNIT
FIRST LATCH BLOCK
1411
R0_1_OUT
1412
F0_1_OUT
1413
R1_1_OUT
1414
ALIGN_F1_1_OUT
14N0
DSR0_N
DSF0_N
DSR1_N
DSF1_N
FIRST LATCH UNIT
SECOND LATCH UNIT
THIRD LATCH UNIT
FORTH LATCH UNIT
NTH LATCH BLOCK
14N1
R0_N_OUT
14N2
F0_N_OUT
14N3
R1_N_OUT
14N4
ALIGN_F1_N_OUT
1500
1510
FIRST ALIGN BLOCK
R0_1_OUT
DSF0_1
DSF1_N
FIRST ALIGN UNIT
1511
ALIGN_R0_1_OUT
F0_1_OUT
DSR1_1
DSF1_N
SECOND ALIGN UNIT
1512
ALIGN_F0_1_OUT
R1_1_OUT
DSF1_1
DSF1_N
THIRD ALIGN UNIT
1513
ALIGN_R1_1_OUT
15N0
R0_N_OUT
DSF0_N
DSR1_N
DSF1_N
FIRST ALIGN UNIT
15N1
ALIGN_R0_N_OUT
F0_N_OUT
DSR1_N
DSF1_N
SECOND ALIGN UNIT
15N2
ALIGN_F0_N_OUT
R1_N_OUT
DSF1_N
THIRD ALIGN UNIT
15N3
ALIGN_R1_N_OUT
NTH ALIGN BLOCK

FIG. 11